

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C12Q 1/68, C07H 21/04		A1	(11) International Publication Number: WO 00/31297
			(43) International Publication Date: 2 June 2000 (02.06.00)
(21) International Application Number: PCT/US99/26019		(74) Agents: GOLDHUSH, Douglas, H. et al.; Nikaido, Marmelstein, Murray & Oram LLP, Metropolitan Square, 655 Fifteenth Street, N.W., Suite 330 – G Street Lobby, Washington, DC 20005-5701 (US).	
(22) International Filing Date: 23 November 1999 (23.11.99)		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(30) Priority Data: 60/109,432 23 November 1998 (23.11.98) US		Published <i>With international search report.</i>	
(71) Applicants (for all designated States except US): UNIVERSITY OF MARYLAND, COLLEGE PARK [US/US]; Office of Technology Liaison, 4312 Knox Road, College Park, MD 20742 (US); UNIVERSITY OF MARYLAND, BALTIMORE [US/US]; Office of Research & Development, 515 West Lombard Street, Baltimore, MD 21201 (US). UNIVERSITY OF PITTSBURGH [US/US]; Office of Technology Management, Rm 9110, William Pitt Union, Pittsburgh, PA 15260 (US).			
(72) Inventors; and (75) Inventors/Applicants (for US only): SHULDINER, Alan [US/US]; 10600 Harpoon Hill, Columbia, MD 21044 (US). FERRELL, Robert, E. [US/US]; 206 Maple Avenue, Pittsburgh, PA 15218 (US). HAGBERG, James, M. [US/US]; 10941 Hilltop Lane, Columbia, MD 21044 (US). BROWN, Michael, D. [US/US]; 9751 Mountain Laurel Way, 3A, Laurel, MD 20723 (US).			
(54) Title: <u>GENETIC MARKERS WHICH IDENTIFY INDIVIDUALS WHO IMPROVE THEIR DIABETES STATUS WITH EXERCISE</u>			
(57) Abstract			
<p>A method of improving diabetes status in subjects with diabetes or at risk of developing diabetes, comprising identifying subjects having an allele and/or a genotype at a gene locus which positively correlates with greater success in improving diabetes status in diabetic individuals, as compared with other alleles and/or genotypes at the same gene locus, and engaging the subject in exercise training for a period of time sufficient to improve the subject's diabetes status. Genotypic distinctions may be found, for example, in the beta-2 and beta-3 adrenergic system receptor (ASR) gene, the peroxisome proliferator activator receptor gamma (PPAR-gamma) gene, the insulin receptor substrate-1 (IRS-1) gene and the fatty acid binding protein-2 (FABP-2) gene.</p>			